

RECEIVED
CENTRAL FAX CENTER
OCT 27 2006

REMARKS

This amendment is being made based on a telephonic interview between the Examiner and the undersigned attorney on October 27, 2006 in which the changes to the claims were discussed. The amended language, as provided in this amendment, was presented to the Examiner, who indicated that such claim amendments would be entered for purposes of appeal. Accordingly, the Applicants respectfully request entry of this amendment. Claims 1-48, all the claims pending in the application, stand rejected on prior art grounds and upon informalities. Claims 1, 8, 18, 27, and 43 are amended herein. Applicants respectfully traverse these rejections based on the following discussion.

I. The 35 U.S.C. §112, Second Paragraph, Rejection

Claims 1-48 stand rejected under 35 U.S.C. §112, second paragraph. These rejections are traversed as explained below. Independent claims 1, 8, 27, and 43 have been amended to change "comprising only" to "consisting of". Likewise, independent claim 18 has been amended to change "comprises only" to "consists of". Such changes remove any ambiguity in the claimed language. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II. The Prior Art Rejections

Claims 1, and 4-7 stand rejected under 35 U.S.C. §102(b) as being anticipated by Stivers et al. (U.S. Patent No. 6,410,193), hereinafter referred to as "Stivers". Claims 1-48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Stivers in view of Cardinale (U.S.

Patent No. 6,368,942) and Kirchauer et al. (U.S. Patent No. 6,479,195), hereinafter referred to as "Kirchauer". Applicants respectfully traverse these rejections based on the following discussion.

Stivers teaches a reflective mask having non-reflective and reflective regions, where the reflective regions are reflective of a first light that has an inspection wavelength and are reflective of a second light that has a semiconductor processing exposure wavelength. The non-reflective regions are less reflective of the first light and the second light than the reflective regions in order to create: 1) a first image with a contrast greater than 0.210 and that is formed by reflecting the first light off of the reflective mask; and 2) a second image with a contrast greater than 0.750 and that is formed by reflecting the second light off of the reflective mask.

Cardinale teaches a method for fabricating masks for extreme ultraviolet lithography (EUVL) using Ultra-Low Expansion (ULE) substrates and crystalline silicon. ULE substrates are required for the necessary thermal management in EUVL mask blanks, and defect detection and classification have been obtained using crystalline silicon substrate materials. Thus, this method provides the advantages for both the ULE substrate and the crystalline silicon in an Extreme Ultra-Violet (EUV) mask blank. The method is carried out by bonding a crystalline silicon wafer or member to a ULE wafer or substrate and thinning the silicon to produce a 5-10 μm thick crystalline silicon layer on the surface of the ULE substrate. The thinning of the crystalline silicon may be carried out, for example, by chemical mechanical polishing and if necessary or desired, oxidizing the silicon followed by etching to the desired thickness of the silicon.

Kirchauer discloses a reflective mask for EUVL to produce tight CD control on a wafer and a process for fabricating such a mask. In one embodiment, the upper corners of the edges of

the absorber layer are rounded or smooth. In another embodiment, the upper surface of the absorber layer is rough. In a further embodiment, an antireflective coating is disposed on the absorber layer.

However, the claimed invention, as provided in amended independent claims 1, 8, 18, 27, and 43 contain features, which are patentably distinguishable from the prior art references of record. Specifically, claims 1, 27, and 43 recite, in part, "[a]n (EUVL) mask consisting of a reflective upper surface;" claim 8 recites, in part, "[a] radiation scattering reflective mask consisting of a reflective upper surface, said radiation scattering reflective mask;" and claim 18 recites, in part, "wherein said multilayer consists of a reflective upper surface."

Stivers teaches reflective and non-reflective upper regions (see FIGS. 1B and 2G as well as column 2, lines 24-37 and column 5, lines 10-13). In FIG. 1B (and column 1, lines 58-65) of Stivers clearly upper regions 105 are non-reflective and region 106 is reflective. In FIG. 2G (and column 5, lines 10-13) of Stivers clearly upper region 207 is non-reflective and region 208 is reflective. Conversely, the Applicants' upper region consists of a reflective upper surface (i.e., the upper region only has a reflective upper surface; no other types of surfaces (such as non-reflective surfaces) are possible to be included). Accordingly, the prior art of record does not teach the limitation of having only a reflective upper surface to the exclusion of a non-reflective upper surface, which the Applicants' claimed invention provides.

Page 2 of the Office Action states that, "[h]owever, the reflectors are multilayer in the prior art and in the claimed invention, and the reflection is not occurring at the outermost surface of the mask, but within the multi-layers of the reflector." However, the Applicants respectfully submit that this is largely irrelevant because the Office Action is actually arguing the

functionality of the cited prior art and comparing that to the functionality of the Applicants' claimed invention, whereas Applicants' claims 1, 8, and 18 are only structural claims and no functionality is being recited, and no functional language should be read into the recited structural language. Therefore, it is irrelevant where the reflection is occurring, but rather that the Applicants' claims contain structural features not present in the cited prior art. As proved above, the cited prior art, namely Stivers, does not teach or render obvious a mask consisting of a reflective upper surface. While Applicants' claims 27 and 43 do provide functional language (because claims 27-48 are method claims), such functional language is restricted to the method of forming the mask (as provided in the preamble of claims 27 and 43) and not the method of use. In the present application, the preamble of claims 1, 8, 27, and 43 includes the structural limitation of a mask consisting of a reflective upper surface. Such a limitation should be given patentable weight (Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 896, 221 USPQ 669, 675-76 (Fed Cir.), *cert. denied*, 469 U.S. 857, 225 USPQ 792 (1984); Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ 2d 1816, 1820 (Fed. Cir. 1995)).

Insofar as references may be combined to teach a particular invention, and the proposed combination of Stivers, Cardinale and Kirchauer, case law establishes that, before any prior-art references may be validly combined for use in a prior-art 35 U.S.C. § 103(a) rejection, the individual references themselves or corresponding prior art must suggest that they be combined. However, there is nothing in each of the references that suggests such a motivation to combine as suggested in the Office Action. In fact, had such a motivation been anticipated in any of the prior art references, then surely some discussion regarding alternative embodiments or manners

of combination would have been suggested or at least inferred in any of the prior art references.

In fact, no suggestion for combination is provided in any of the prior art references.

In In re Sernaker, 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983), the court stated: “[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings.” Furthermore, the court in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988), stated, “[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. . . . Something in the prior art must suggest the desirability and thus the obviousness of making the combination.” There is nothing in the prior art that refers to a suggestion or desirability of making the proposed combination. Accordingly, the rejection under 35 U.S.C. §103(a) is prima facie defective.

In the present application, the reason given to support the proposed combination is improper, and is not sufficient to selectively and gratuitously substitute parts of one reference for a part of another reference in order to try to meet, but failing nonetheless, the Applicants’ novel claimed invention. Moreover, there is nothing in the prior art references themselves, namely Stivers, Cardinale, and Kirchauer, which suggests a motivation to combine elements from each reference in a manner consistent with the suggestion by the Office Action. Furthermore, the claimed invention meets the above-cited tests for obviousness by including embodiments such as “a mask consisting of a reflective upper surface.” As such, all of the claims of this application are, therefore, clearly in condition for allowance, and it is respectfully requested that the Examiner pass these claims to allowance and issue.

10/709,733

16

As declared by the Federal Circuit:

In proceedings before the U.S. Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992) citing In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing a prima facie case of obviousness. It is clear that, not only does Stivers fail to disclose all of the elements of the claims of the Applicants' claimed invention, but also, if combined with Cardinale and Kirchauer, fails to disclose these elements as well. The unique elements of the claimed invention are clearly an advance over the prior art.

The Federal Circuit also went on to state:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Fritch at 1784-85, citing In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Here, there is no suggestion that Stivers, alone, or in combination with Cardinale and Kirchauer teaches a structure and method containing all of the limitations of the claimed invention. Consequently, there is absent the "suggestion" or "objective teaching" that would have to be made before there could be established the legally requisite "prima facie case of obviousness." In view of the foregoing, the Applicants respectfully submit that the collective

cited prior art do not teach or suggest the features defined by amended independent claims 1, 8, 18, 27, and 43 and as such, claims 1, 8, 18, 27, and 43 are patentable over Stivers, alone, or in combination with Cardinale and Kirchauer. Further, dependent claims 2-7, 9-17, 19-26, 28-42, and 44-48 are similarly patentable over Stivers, alone, or in combination with Cardinale and Kirchauer, not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features of the invention they define. Thus, the Applicants respectfully request that these rejections be reconsidered and withdrawn.

Moreover, the Applicants note that all claims are properly supported in the specification (see paragraph [0035] of the specification) and accompanying drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

III. Formal Matters and Conclusion

With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

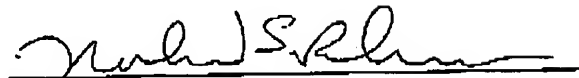
In view of the foregoing, Applicants submit that claims 1-48, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any

overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

Dated: October 27, 2006



Mohammad S. Rahman

Registration No. 43,029

Gibb I.P. Law Firm, LLC
2568-A Riva Road, Suite 304
Annapolis, MD 21401
Voice: (301) 261-8625
Fax: (301) 261-8825
Customer Number: 29154